ATTACHMENT 5
ROG and NOx Emissions
Food and Agriculture Processing
San Joaquin Valley

EMISSION INVENTORY SUMMARY CATEGORY
Food and Agricultural Processing (Combustion)
Food and Agriculture

EMISSION INVENTORY CODES (CES CODES) AND DESCRIPTION
052-xxx-xxxx-xxxx (xxxxx) Food and Agricultural Processing (Combustion)

420-xxx-xxxx-xxxx (xxxxx) Food and Agriculture

METHOD FOR CALCULATING EMISSIONS

EIC: 052-xxx-xxxx-xxxx (36 categories)
- Boilers
- IC Engines
- Process Heaters

Emissions in this source category come from the combustion of fuel in boilers, engines and other fuel burning processes used in and related to agricultural and food preparation processes and services. Emissions are calculated in two ways. Facilities large enough to be placed in CEIDARS report their emissions individually to the district. For all other smaller processes, an areawide source methodology is developed to estimate the emissions from those sources that are not reported individually in CEIDARS. In both cases the emissions are calculated by multiplying the amount of fuel burned or the number of operating hours by a device and/or fuel specific emission factor. In general, emission factors for NOx are well updated and reflect source test data (the best). ROG factors are generally estimated from USEPA AP-42, a collection of emission factors for generic equipment types, and are therefore not as reliable as the NOx factors. Please note we are currently using data supplied by the district for diesel irrigation pumps. However, we recognize that additional work needs to be done on this category.

EIC: 420-xxx-xxxx-xxxx (11 categories)
- Wine Fermentation/Aging
- Bakeries
- Animal/Poultry Processing
- Food Crop Processing
- Cottonseed/Vegetable Oil Processing

Emissions in this source category come from operating emissions and processing losses related to agriculture and food preparation processes and services. Emissions

are calculated in two ways. Facilities large enough to be placed in CEIDARS report their emissions individually to the district and these reported emissions end up in CEIDARS. For all other smaller processes, an areawide source methodology is developed to estimate the emissions from those sources that are not reported individually in CEIDARS. In both cases the emissions are calculated by multiplying a process rate by process specific emission factor. Emission factors in this category can be based on test data, but most are estimates based on tests done for similar processes and equipment.

The tables below show the Major Category trends, see attached sheet for more detail.

ROG and NOx EMISSIONS IN THE SAN JOAQUIN VALLEY

Summer ROG Emissions (tons per day)

Major Category	1999	2010
Food and Agricultural Processing (Combustion)	0.1	0.1
Food and Agriculture	10.6	11.6
TOTAL	**10.7**	**11.7**

Summer NOx Emissions (tons per day)

Major Category	1999	2010
Food and Agricultural Processing (Combustion)	3.9	3.6
Food and Agriculture	9.3	8.1
TOTAL	**13.2**	**11.7**

GROWTH AND CONTROL ASSUMPTIONS

Growth is calculated by assigning growth surrogates to these categories and then growing their emissions based on the forecasted growth of those surrogates. Each category is grown based on the SIC code it falls under and then based on either the fuel use projections, the gross dollar output projections or the employment trends for that category. The tables below show the overall growth by Major Category. See attached sheet for greater detail.

ROG & NOx Emissions Growth (1999-2010)

Major Category	Growth Increase (%)
Food and Agricultural Processing (Combustion)	2%
Food and Agriculture	12%

Control is assigned based on federal, state and local rules. The tables below show the overall Major Category Control. The percent control for each EIC category is listed in the attached sheet.

ROG Control

Major Category	Control (%)
Food and Agricultural Processing (Combustion)	0%
Food and Agriculture	3%

NOx Control

Major Category	Control (%)
Food and Agricultural Processing (Combustion)	8%
Food and Agriculture	0%

TEMPORAL ACTIVITY

Many manufacturing and processing facilities will operate on a weekly schedule of 6 or 7 days/week and 16 to 24 hours a day (in 2 or 3 shifts). But it is the monthly variation that proves most significant for these categories and for their contribution to excessive ozone formation, a "summer" phenomenon. By "summer", the ARB refers to the months May through October, when we see the ozone standards most often violated. The tables below show the percent activity in each month by Major Category.

EIC: 052-xxx-xxxx-xxxx: Food and Agricultural Processing (Combustion)

ROG Emissions Activity (percent)

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
18.5	20.3	18.5	15.0	1.0	1.1	1.6	2.2	2.3	1.5	4.6	13.2

Summer	9.9
Winter	90.1

NOx Emissions Activity (percent)

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
4.6	4.2	4.2	5.9	7.2	5.5	12.2	15.7	16.9	11.8	6.7	5.0

Summer	69.3
Winter	30.7

EIC: 420-xxx-xxxx-xxxx: Food and Agriculture

ROG Emissions Activity (percent)

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
7.3	7.3	7.3	7.3	7.3	7.3	6.9	9.9	11.4	11.7	8.9	7.3

Summer	54.5
Winter	45.5

NOx Emissions Activity (percent)

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	19.3	19.3	12.5	5.6

Summer	60.2
Winter	39.8